

REMARKS

The Examiner has restricted the following inventions under 35 U.S.C. 121:

- I. Claims 1-7 and 14-20, drawn to a method and system for path set-up, classified in class 370, subclass 352.
- II. Claims 8-13 and 21-24, drawn to a method and system for bandwidth conservation, classified in class 370, subclass 477.

The Examiner stated that the inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as setting up a path through a satellite network as a packet-switched or a circuit-switched connection depending upon QoS requirements. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Anthony Karambelas on 19 November 2004 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-7 and 14-20. The Examiner now requests affirmation of this election must be made by Applicants in replying to this Office Action and further that claims 8-13 and 21-24 are withdrawn from further consideration by the Examiner under 37 CFR 1.142(b) as being drawn to a non-elected invention.

Applicants hereby affirm the election made 19 November 2004 during a telephone conversation and again restate that said election is made with traverse. Applicants take the position that claims 1-7 and 14-20, drawn to a method and system for path set-up, classified in class 370, subclass 352, and claims 8-13 and 21-24, drawn to a method and system for bandwidth conservation, classified in class 370, subclass 477, according to the Examiner, represent one invention and do not require additional search on the part of the Examiner. Applicants respectfully contend that the classes of search are merely to categorize and make searches practical and reasonable for those interrogating the system and even as such admittedly the group of claims reside in class 370 with two separate subclasses, 352 and 477, which require very little if any additional effort since both should be searched in order to perform a complete search for each set of claims. Applicants are making this traversal of the restriction requirement of record and respectfully request that it be withdrawn for the above recited reasons.

The Examiner has reminded Applicants that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Further, the Examiner states any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Applicants respectfully submit that they have complied with 37 CFR 1.48(b).

The Examiner has objected to the drawings in that the user interface ref. 36 is not coupled to the controller in Fig. 1 and has requested that the drawings be corrected in compliance with 37 CFR 1.121(d) as required in reply to the Office Action to avoid abandonment of the application.

Applicants have corrected the drawings in accordance with the Examiner's suggestion by showing user interface 36 coupled to the controller 18 and have submitted herewith replacement sheet 1.

The Examiner has objected to the abstract of the disclosure because it exceeds 150 words in length and requires correction in accordance with MPEP § 608.01(b).

Accordingly, Applicants have submitted a revised abstract in accordance with the Examiner's suggestion and in compliance with MPEP § 608.01(b).

The Examiner has objected to the disclosure because of the informality on page 5, line 3, where "(ISL) 44" should be "(ISL) 41" to match Fig. 1. Applicants have made the appropriate correction.

The Examiner has requested that Applicants update the application information on page 1, lines 28-31, in order to reflect any changes in the status of the application.

Applicants respectfully submit that the application referred to on page 1, lines 28-31, is currently under appeal and therefore no update to the application information is required at this time.

The Examiner has requested that Applicants submit an Information Disclosure Statement to include the references on page 5, lines 9-21 of the specification, unless the references have been cited by the Examiner. Applicants have submitted herewith an Information Disclosure Statement Form PTO/SB/08A.

The Examiner has rejected claims 1-5 and 14-18 under 35 U.S.C. 103(a) as being unpatentable over Forslow USPN 6,608,832 in view of Roccanova USPN 6,522,658.

The Examiner states regarding claims 1 and 14, Forslow discloses a mobile telecommunications system and method, comprising: at least one user terminal (col. 6, lines 48-54); and at least one gateway bidirectionally coupled to a data communications network (col. 6, lines 60-64); said user terminal comprising a controller responsive to

applications for selecting individual ones of a plurality of Quality of Service (QoS) modes for servicing different application requirements (col. 5, lines 41-60 and col. 6, lines 48-64).

The Examiner admits that Forslow does not expressly disclose that the mobile telecommunications system is mobile satellite telecommunications system which includes at least one satellite in earth orbit; however, Forslow does disclose that the invention can be used in a variety of mobile telecommunication systems, directing Applicants' attention to col. 8, lines 60-63. The Examiner submits that Rocanova teaches that it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems since orbital designs must accommodate the need for short round trip times required for voice data, directing Applicants' attention to col. 1, lines 32-36. Thus, the Examiner concludes it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunications system be a mobile satellite telecommunications system, which includes at least one satellite in earth orbit, since it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems.

Applicants respectfully contend that in Forslow USPN 6,608,832, hereinafter referred to as Forslow '832, there is disclosed "Applications running on a mobile station or an external network entity such as an Internet service provider may specify on an individual application flow basis a requested quality of service." At col. 6, lines 48-54 of Forslow '832 there is disclosed "A significant advantage of the present invention is that applications running on a mobile station or on an external network entity such as an Internet service provider may specify on an individual application flow basis a requested quality of service, and with this information, select the type of bearer to be employed when transferring the application flow through the mobile communications network." Further, at col. 6, lines 60-64 there is disclosed "The mobile station and a mobile network gateway node each include a mapper for mapping individual application flows to one of the circuit-switched network and the packet-switched network bearers depending on the quality of service requested for an individual application flow." At col. 5, lines 41-60 there is a broad ranging discussion of an optimal type of mobile communications network transfer service – a circuit-switched transfer service or a packet-switched transfer service – is specified on an individual application flow basis. Further, at col. 6, lines 48-64, as previously recited, there may be a specification of a quality of service which can be selected at the application layer which is advantageous because the application has the best end-to-end perspective of the communication.

Applicants respectfully contend that it is not at all clear that at col. 6, lines 48-54, as recited above, there is seen, as the Examiner contends, a mobile telecommunications system and method comprising at least one user terminal since what is apparently

described is applications running on a mobile station or on an external network entity such as a Internet service provider specifying a quality of service. Furthermore, at col. 6, lines 60-64, Applicants respectfully submit there is no indication either in the drawing of said reference or in the specification that said gateway is bidirectionally coupled to a data communication network as required in the instant claims. Further, as stated above, Applicants are at a loss to discern how at col. 5, lines 41-60 and col. 6, lines 48-64 there is disclosed a user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as contended by the Examiner.

Applicants respectfully submit, as the Examiner admits, that Forslow '832 does not expressly disclose that the mobile telecommunications system is mobile satellite telecommunications system which includes at least one satellite in earth orbit; however, the Examiner contends that Forslow '832 does disclose that the invention can be achieved in a variety of mobile telecommunications systems, citing col. 8, lines 60-63, with no mention, suggestion or implication that a mobile satellite telecommunications system may be employed.

Applicants respectfully submit that at col. 1, lines 32-36 of Roccanova USPN 6,522,658, hereinafter referred to as Roccanova '658, there is disclosed "Discriminating and routing data packets based on QoS requirements is of particular importance in satellite-based communication systems where orbital designs must accommodate the need for short round trip times required for voice data." Applicants respectfully submit, however, that Roccanova '658 is directed to "A method is provided for discriminating and routing data packets in a satellite-based communication system (10), comprising the steps of: (a) receiving an input data stream from an application residing on a transmitting device (12); (b) selecting either a first spread spectrum code or a second spread spectrum code based on the quality of service (QOS) requirements associated with the first application; (c) applying the selected spread spectrum code to the input data stream, thereby generating a spread spectrum data stream; (d) transmitting the spread spectrum data stream from the transmitting device (12) to a network routing device (14); (e) correlating the spread spectrum data stream with the corresponding selected spread spectrum code to recover the original input data stream; and (f) routing the input data stream to either a low earth orbiting satellite (16) when the first spread spectrum code is used to recover the input data signal or to a geosynchronous orbiting satellite (18) when the second spread spectrum code is used to recover the input data signal."

Among other distinctions, Applicants respectfully submit that Roccanova '658 is not concerned nor does it disclose at least one user terminal or a gateway bidirectionally coupled to a data communications network in combination with a controller responsive to

applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as required in claim 1, for example. Furthermore, Applicants respectfully contend there is neither any suggestion, implication or teaching that Forslow '832, devoid of any mobile satellite telecommunication disclosure, may be combined with Roccanova '658 which is directed to a method for discriminating and routing data packets in a satellite-based communication system which is not anywhere taught to be mobile in order to reject Applicants' instant claims.

Applicants therefore disagree that it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunication system be a mobile satellite telecommunication system which includes at least one satellite in earth orbit since it is important to discriminate and route packets based on QoS requirements in satellite-based communication system as contended by the Examiner.

The Examiner goes on to state regarding claims 2 and 15, referring to claims 1 and 14, Forslow in view of Roccanova discloses that the user terminal operates to communicate a request for a selected one of said QoS modes at least to said gateway, and in response the system allocates resources to accommodate the requested QoS mode, directing Applicants' attention to Forslow col. 6, lines 3-15 and col. 6, lines 48-64.

Applicants respectfully contend that at col. 6, lines 3-15 and col. 6, lines 48-64 of Forslow '832 there is taught, respectively, quality of service parameters specified by the application for an individual application flow are mapped to corresponding quality of service parameters for the selected one of the circuit-switched or packet-switched bearers. And at col. 6, lines 48-64 "The mobile station and a mobile network gateway node each include a mapper for mapping individual application flows to one of the circuit-switched network and the packet-switched network bearers depending on the quality of service requested for an individual application flow." Applicants respectfully disagree that there is taught, suggested or implied that the user terminal operates to communicate a request for a selected one of said QoS modes at least to said gateway in these recitations relied upon by the Examiner since both disclosures are devoid of any user terminal operation to communicate a request. Furthermore, claims 2 and 15 are patentably distinguishable over Forslow '832 in view of Roccanova '658 for the reasons recited above with regard to claims 1 and 14 which are hereby respectfully incorporated by reference.

Regarding claims 3 and 16, the Examiner refers to claims 1 and 14 stating Forslow in view of Roccanova suggests that a user is billed a greater amount for use of a QoS of higher quality, citing Forslow col. 1, lines 41-62 where Forslow discloses that higher QoS requirements mandate less efficient use of resources.

Applicants respectfully submit that at col. 1, lines 41-62 of Forslow '832 there is disclosed "While bursty traffic can be transmit using a circuit-switched channel, such a

"transmission underutilizes that channel because there are likely large intervals between bursts when the channel is reserved but is not being used, there is no information to be transmit from or received by the user....However from a customer service view point, because a circuit-switched channel is not shared with other users, the user is essentially guaranteed a certain quality of service....Communication channels are therefore typically shared by many users. Another advantage is that in contrast to time-oriented charging applied for circuit-switched connections, packet-switched data services allow charging depending on the amount of data actually transmitted and on the quality of service of that transmission."

Applicants respectfully submit that charging is provided depending on the amount of data actually transmitted and on the quality of service of that transmission as opposed to a greater amount for the use of a QoS of higher quality as required in claim 3 alone and in any event claims 3 and 16 are seen to be patentably distinguishable over Forslow '832 in view of Roccanova '658 for the reasons recited above with regard to claims 1 and 14 which are hereby respectfully incorporated by reference.

The Examiner goes on to state regarding claims 4 and 17, referring to claims 1 and 14, Forslow in view of Roccanova suggests that the QoS modes comprise a Highest Quality of Service mode, a Medium Quality of Service mode, a Best Available Quality of Service mode, citing Forslow col. 5, lines 1-10, and a Guaranteed Data Rate Packet Data Service mode, citing Forslow col. 1, lines 48-51.

Applicants respectfully submit that Forslow '832 at col. 5, lines 1-10, there is disclosed "Generally, quality of service parameters can be characterized qualitatively in three services classes including deterministic (used for hard, real-time application), statistical (used for soft real-time applications), and best effort (everything else where no guarantees are made). Quantitative parameters may include throughput (such as the average data rate or peak data rate), reliability, delay, and jitter corresponding to the variation delay between a minimum and maximum delay time that a message experiences."

Applicants respectfully submit that neither at col. 5, lines 1-10 of Forslow '832 relating to deterministic, statistical and best effort, in addition to the other disclosure relied upon by the Examiner at col. 1, lines 48-51 of Forslow '832 relating to, from a customer service view point because a circuit-switched channel is not shared with other users, the user is essentially guaranteed a certain quality of service; this in no way teaches, discloses or implies the QoS modes comprising a highest quality of service mode, a medium quality of service mode, a best available quality of service mode, and a guaranteed data rate packet data service mode. Notwithstanding this further distinction, Applicants respectfully submit that claims 4 and 17 have been shown to be patentably distinguishable over

Forslow '832 in view of Roccanova '658 for those reasons recited above with regard to claims 1 and 14 which are hereby respectfully incorporated by reference.

The Examiner states regarding claims 5 and 18, referring to claims 1 and 14, Forslow in view of Roccanova discloses that the controller selects one of a circuit switched or a packet switched mode of operation, citing Forslow col. 5, lines 41-51 and col. 6, lines 48-54.

Applicants respectfully submit that at the recitation at col. 5, lines 41-51 of Forslow '832 relied upon by the Examiner there is merely stated that "a circuit-switched transfer service or a packet-switched transfer service -- is specified on an individual application flow basis. Circuit-switched services may be selected, for example, for real time...Packet-switched bearers may be selected for non-real time..." At col. 6, lines 48-54 of Forslow '832 it is merely stated that "applications running on a mobile station or on an external network entity such as an Internet service provider may specify on an individual application flow basis a requested quality of service..." Applicants respectfully disagree that this discloses that the controller selects one of a circuit-switched or a packet-switched mode of operation and furthermore claims 5 and 18 have been seen to be patentably distinguishable over Forslow '832 in view of Roccanova '658 for the reasons cited above with regard to claims 1 and 14 which are hereby respectfully incorporated by reference.

The Examiner has rejected claims 6, 7, 19 and 20 under 35 U.S.C. 103(a) as being unpatentable over Forslow USPN 6,608,832 in view of Roccanova USPN 6,522,658 in further view of Wiedeman et al USPN 5,655,005.

The Examiner states regarding claims 6 and 19, Forslow discloses a mobile telecommunications system and method comprising: at least one user terminal (col. 6, lines 48-54); at least one gateway bidirectionally coupled to a data communications network (col. 6, lines 60-64); and a processor responsive at least to stored information for selecting a path through said network to a destination gateway for routing a communication to or from said data communication network and said user terminal (col. 6, lines 7-10) where the resource reservation approach allows a terminal to select a particular path to transmit the information, and for causing a description of said selected path to be transmitted from said user terminal to at least one node of the network (col. 6, lines 3-15 and col. 6, lines 48-64) where the terminal must inform the system of the selected path in order for the system to use that path.

The Examiner admits that Forslow does not expressly disclose that the mobile telecommunications system is mobile satellite telecommunications system which includes a constellation of satellites in earth orbit; however, the Examiner contends that Forslow does disclose that the invention can be used in a variety of mobile telecommunication systems, citing col. 8, lines 60-63. The Examiner contends that Roccanova teaches that it is

important to discriminate and route packets based on QoS requirements in satellite-based communication systems since orbital designs must accommodate the need for short round trip times required for voice data, citing col. 1, lines 32-36 where the satellite communication system uses a constellation of satellites, citing col. 1, lines 37-60. Thus, according to the Examiner, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunications system be a mobile satellite telecommunications system, which includes a constellation of satellites in earth orbit, since it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems.

Applicants respectfully contend, as recited above, that at col. 6, lines 48-54 of Forslow '832 there is no where to be found at least one user terminal but applications running on a mobile station or on an external network entity such as an Internet service provider; at col. 6, lines 60-64 of Forslow '832 there is not taught, suggested or implied a gateway bidirectionally coupled to a data communications network; at col. 6, lines 7-10 of Forslow '832 there is neither taught, suggested or implied a processor responsive at least to stored information for selecting a path through said network to a destination gateway for routing communication to or from said data communication network and said user terminal; and finally at col. 6, lines 3-15 and col. 6, lines 48-64 of Forslow '832 there is no where taught, suggested or implied satellite ephemeris information for selecting a path through said satellite constellation to a destination gateway for routing a communication to or from said data communication network and said user terminal and for causing a description of said selected path to be transmitted from said user terminal to at least one of said constellation of satellites as required in claims 6 and 19.

Furthermore, in Forslow '832 at col. 8, lines 60-63 there is no where taught, suggested or implied a constellation of satellites in earth orbit but merely that Forslow '832 does disclose that the invention can be used in a variety of mobile telecommunications systems.

Furthermore, in Roccanova '658 at col. 1, lines 32-36 and in col. 1, lines 37-60 there is not taught a stored satellite ephemeris information for selecting a path through said satellite constellation to a destination gateway for routing a communication to or from said data communication network and said user terminal and for causing a description of said selected path to be transmitted from said user terminal to at least one of said constellation of satellites as required in both claims 6 and 19.

Thus, Applicants respectfully disagree that it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunications system be a mobile satellite telecommunications system which includes a constellation of

satellites in earth orbit since it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems.

The Examiner admits that Forslow in view of Rocanova does not expressly disclose that the processor is responsive at least to stored satellite ephemeris information for selecting a path through said satellite constellation. However, the Examiner contends that Wiedeman teaches in a satellite communication system using satellite ephemeris information in order to select a path through a satellite constellation when the satellites move relative to the end user, citing col. 3, lines 12-26. Thus, the Examiner concludes, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the processor be responsive at least to stored satellite ephemeris information for selecting a path through said satellite constellation in order to select a path through a satellite constellation when the satellites move relative to the end user.

Applicants respectfully submit that in Wiedeman '005 at col. 3, lines 12-26 there is merely stated "The system operates by effecting communication between a terrestrial wireless telephone end user transceiver apparatus and a terrestrial communications link via only a single relay...wherein the ground-based equipment makes the ultimate decision on linking based on satellite ephemeris information and end user information, and wherein the end user transceiver apparatus, the orbiting satellite and the terrestrial communications link cooperate to effect hand-off from a first orbiting satellite to a second orbiting satellite other than the first orbiting satellite." Applicants respectfully submit this is to be contrasted with ephemeris information for selecting a path through said satellite constellation to a destination gateway for routing a communication to or from said data communication network and said user terminal and for causing a description of said selected path to be transmitted from said user terminal to at least one of said constellation of satellites as required in claims 6 and 19 and not to effect hand-off from a first orbiting satellite to a second orbiting satellite as disclosed in the recited passages relied upon by the Examiner.

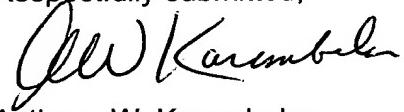
The Examiner states regarding claims 7 and 20, referring to claims 6 and 19, Forslow in view of Rocanova in further view of Wiedeman suggests that the processor is further responsive to stored gateway location information for selecting said path through said satellite constellation to said destination gateway, citing Forslow col. 6, lines 3-15 and col. 6, lines 48-64 and Wiedeman col. 3, lines 12-26, where the location of the gateway must be known in order to complete a path through that gateway.

Applicants respectfully submit that in Forslow at col. 6, lines 3-15 there is merely recited, as previously discussed, the quality of service parameters specified by the application for an individual application flow are mapped to corresponding quality of service parameters for the selected one of the circuit-switched or packet-switched bearers....the header of each information packet when read determines whether a circuit-switched bearer

or a packet-switched bearer carries that packet; and at col. 6, lines 48-64 there is merely disclosed, as previously recited, applications running on a mobile station or on an external network such as an Internet service provider may specify on an individual application flow basis a requested quality of service and select the type of bearer to be employed when transferring the application flow through the mobile communications network. Applicants respectfully submit that neither of these recitations in Forslow relied upon by the Examiner and further in Wiedeman at col. 3, lines 12-26 relating to hand-off is there taught, suggested or implied a processor further responsive to stored gateway location information for selecting said path through said satellite constellation to said destination gateway as required in both claims 7 and 20. Furthermore, claims 7 and 20 have been seen to be patentably distinguishable over Forslow in view of Rocanova, further in view of Wiedeman, for the reasons cited above with regard to claims 6 and 19 which reasons are hereby incorporated by reference.

Applicants respectfully submit that in view of the above remarks and amendments all of the claims presently under prosecution have been shown to contain patentable subject matter and to be patentably distinguishable over Forslow '832, Rocanova '658 or Wiedeman '005, alone or in any combination. Accordingly, Applicants respectfully request that this application be reviewed and reconsidered in view of the above remarks and amendments and that a Notice of Allowance be issued at an early date.

Respectfully submitted,



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